

SECTION 02282

HANDLING, TRANSPORTATION AND DISPOSAL OF EXCAVATED MATERIALS

PART 1 - GENERAL

0.1 DESCRIPTION OF WORK

- A. Work Included: This Section specifies the procedures used for field screening; soil sampling, stockpile management, reuse, transportation and disposal of excavated materials.
- B. This section includes furnishing all plant, labor, equipment, appliances and materials, and performing all operations in connection with the handling, testing, treating, stockpiling, transporting and disposal and/or re-use of soil (defined hereinafter as including sediments for the purposes of this Section) and associated fill and waste material resulting from the construction operations as specified.
- C. Related Work: The following items are not included in this Section and will be performed under but may not be limited to the following designated Sections:
 - 1. Section 00700 - GENERAL CONDITIONS
 - 2. Section 01151LS - MEASUREMENT AND PAYMENT
 - 3. Section 01568 - CONSTRUCTION SAFETY
 - 4. Section 01569 - SAFETY CERTIFICATION
 - 5. Section 02300 - EARTHWORK
- D. For the purpose of this section the Authority will be the Generator and will sign all disposal facility waste profiles, Hazardous Waste Manifests (manifest), Material Shipping Records (MSR) and MCP Bills of Lading (BOL) as the Generator. The Contractor's License Site Professional (LSP) will sign all BOL as the LSP and MSRs as the Environmental Professional. Except for soil that requires transport under a manifest, all soil shall be transported under BOL or MSR whichever is applicable, based on the results of the laboratory chemical analysis of soils. All paperwork required for work under this Section shall be prepared by the Contractor. BOL shall be utilized for soils \geq Reportable Concentration (RCS-1) soils; MSR shall be utilized for all \leq RCS-1 soils.
- E. Furnish all labor, materials, equipment, and incidentals necessary to properly, sample, segregate, handle/manage, load, transport and dispose of excavated materials located from within the Limit of Work. Work covered by this Section shall include furnishing, operating, and

maintaining soil stockpile/staging areas and equipment decontamination stations for the duration of excavation activities and dismantling, disposing of decontamination stations and stockpile/staging areas at project completion. Decontamination stations shall be capable of eliminating the dispersion of dust and mud caused by vehicles exiting the site.

- F. The objective of the soil management practices is to handle all soil and fill excavated during this contract in accordance with applicable state, federal and local regulations and bylaws and to implement off-site soil management in a cost effective manner. To the extent possible, the Contractor shall reuse geotechnically suitable excavated material prior to using imported backfill to reduce the volume of material to be disposed.

0.2 RESPONSIBILITIES

- A. The Contractor shall employ the services of an Environmental Consultant to assist in the activities listed below. Contractor's Responsibilities:
1. The Contractor shall employ the services of an Environmental Consultant to perform the soil screening, soil sampling, dust control measures, management coordination and support compliance efforts associated with all references listed in this Section. The Environmental Consultant shall include at least one professional experienced in soil sampling and dust control measures and a Licensed Site Professional (LSP) registered with the Massachusetts LSP Board. Proof of current licensure and professional experience on projects of similar nature and complexity shall be provided to the Engineer with the Excavated Materials Management Plan (EMMP).
 2. The Contractor shall field-screen excavated material for the presence of volatile organic compounds (VOCs) with a photo ionization detector (PID). As directed by the Engineer, samples representative of each 20 cubic yards of material excavated shall be screened.
 3. The Contractor shall, as deemed appropriate by the Contractor's LSP and the Engineer utilize portable x-ray fluorescence (XRF) for initial soil screening and segregation purposes.
 4. The Contractor shall be responsible for the submitting to the Engineer the daily logs summarizing field screening and excavating activities.
 5. The Contractor shall identify and propose locations for construction staging of both on or offsite temporary soil stockpiles and miscellaneous materials, soil/waste treatment technologies and treatment areas (on-site or offsite), disposal, recycling and treatment facilities, facilities for the beneficial re-use of excavated materials including but not limited to soil, debris, or other miscellaneous materials, temporary storage facilities, landfills, soil recycling and hazardous waste treatment, storage and disposal facilities for all excavated material.

6. The Contractor shall be responsible for transporting excavated material to the approved construction storage location/stockpile area and, disposal, recycling, treatment facilities and facilities for beneficial re-use.
7. The Contractor shall furnish, operate and maintain equipment decontamination stations for the duration of excavation and soil disposal work.
8. The Contractor shall develop and implement site-specific emergency response and health and safety protocols and procedures.
9. For each shipment of material transported to a disposal facility, the Contractor shall demonstrate to the Engineer that the least costly means of disposal has been selected. This demonstration shall be made prior to shipment.
10. The Contractor shall be responsible for submitting completed Bills of Lading, MSR, manifests and other shipping documents to the Engineer within two weeks of shipment to a storage or disposal/recycling facility. The Contractor is responsible for uploading these BOLs onto the MassDEP electronic filing system (eDEP). The Contractor's LSP will sign and stamp Bills of Lading. The receiving facility shall provide electronic attestation of receipt of soils within 5-days of receiving notification from the LSP of the availability of the BOL for that purpose on eDEP.
11. The Contractor shall advise the Engineer at least three working days in advance of the schedule for off-site disposal of excavated material. No off site shipments or on-site re-use will occur without the approval of the Engineer.
12. The Contractor shall advise the Engineer at least three working days in advance of the collection of soil samples and any other environmental sampling. The Contractor shall collect, analyze and characterize samples of excavated material prior to off-site recycling and/or disposal.
13. The Contractor shall prepare the necessary documents to transport and dispose of excavated material. These documents include, but are not limited to waste profiles, Bills of Lading, MSR and manifests.
14. The Contractor shall submit the executed transportation and disposal documents to the appropriate local, state and federal agencies as well as the Engineer.
15. The Contractor shall provide an environmental field technician to oversee the loading of excavated material into transport vehicles for off-site disposal/recycling.
16. The Contractor shall develop an excavated soil tracking/management system and keep records, including daily logs and photographs, of all waste streams, stockpiles, and excavated materials for the purposes of tracking points of origin and final disposition.
17. The Contractor shall develop and implement dust control measures.

B. Authority's Responsibilities:

1. The Authority will review and approve the proposed facilities selection of off-site recycling, reuse or disposal facilities.
2. The Authority will be the designated Generator for excavated material identified for off-site reuse, recycling and/or disposal.
3. The Authority will review and approve all paperwork, manifests, and Bills of Lading prior to soil disposal.

0.3 QUALITY ASSURANCE QUALITY CONTROL

- A. The Contractor shall be responsible for the collection and analysis of soil samples from all areas of the site. Sampling frequency shall be conducted as to meet the requirements of the disposal facility. For the purpose of disposal, TPH data is acceptable. However, MCP notification will be based upon VPH and/or EPH MADEP Method 1.0 analysis. The analysis and analytical documentation shall meet the MassDEP Compendium of Analytical Methods requirements. The Contractor shall include the result of all soil testing in the Excavated Materials Management Plan in accordance with Section 1.4 Submittals.

0.4 SUBMITTALS

- A. The Contractor shall prepare an Excavated Materials Management Plan (EMMP) that describes the work to be performed under this Specification. The EMMP shall be submitted within 14-days after the issuance of the Notice to Proceed. The EMMP shall be accepted before excavated soil is disposed of off-site or re-used. At a minimum the EMMP shall address the following:
1. The Plan shall include the current licensure of the Contractor's LSP and proof of relevant experience of the field personnel.
 2. A schedule detailing the proposed sequence of work.
 3. Procedures that shall be used for field screening of the excavated soils.
 4. Procedures for the collection of soil samples for laboratory chemical analysis. The plan shall list the proposed laboratory analytical parameters.
 5. A detailed site plan (in accordance with Section 3.4 Temporary Stockpiling of Excavated Materials) indicating the construction staging/stockpile area as it relates to the active construction area. The detailed site plan shall show the potential layout of the staging area as it relates to the stockpile soil, debris and/or miscellaneous materials and construction materials. For off -site staging areas, the plan shall include the location name, address and any other pertinent information.

6. A material management system plan to track the excavated materials from generation through final disposition. Plan shall include at a minimum the following:
 - a. Provisions for the tracking of the excavated materials from the "point of excavation" to the location of the stockpile material in the storage/staging area to the final disposition of the stockpiled material including all proposed daily log sheets.
 - b. A description of the tracking methodology that shall be implemented to identify the source excavation area(s) and the final disposition of the excavated soil from each area of excavation which.
 - c. A description of the location (i.e. station, offset) depth, date of excavation, stockpile location and stockpile identification system.
 - d. Drawings of the area of excavation and shall document the origins of each soil stockpile and its location within temporary storage area.
 - e. The plan shall be maintained to show the location of all excavated material that has been stockpiled on a daily basis.
 - f. Furnish a duplicate copy of the stockpile plan to be located in the field office and updated on a weekly basis or as needed.
 - g. Provide to the Engineer at a minimum on a weekly basis or as needed copies of field records documenting the location of the stockpiled material in the system and stockpile identification data.
 - h. The plan shall include an Equipment Vehicle decontamination Plan.
7. The means and methods for decontaminating all equipment and personnel, including provisions for installing equipment decontamination pad within the work zone.
8. The means and method for on-site treatment of excavated soil determined through TCLP analysis to be characteristically hazardous pursuant to RCRA (310 CMR 30.00 et. seq.).
9. All pertinent information relating to the transport of excavated material. The information, at a minimum, shall include:
 - a. Name and address of all transporters.
 - b. Transporter identification number (USEPA or Massachusetts Department of Transportation Transporter) and expiration date.
 - c. Proof of permit, license, or authorization to transport excavated material in all affected states.
 - d. Details of methods, vehicle and containers (as applicable) to be used for transporting excavated material. Refer to Part 2 of this Section.
 - e. Dust control measures
 - f. On-site pre-treatment of excavated soil unsuitable for re-use.
10. The Contractor shall identify each waste stream and propose an appropriate disposal facility that will accept the excavated material as classified. The Contractor shall submit approvals or letters of intent

and facility information for each facility proposed. For each facility, the Contractor shall submit the following information:

- a. General Information
 - 1) Facility Name
 - 2) Facility Address
 - 3) Name of Contract Person
 - 4) Title of Contact Person
 - 5) Telephone Number of Contact Person
 - 6) Permit Number
- b. The facility shall specify the volume of material that can be accepted from the site on a weekly and a total basis.
- c. The facility shall provide written confirmation that they are permitted to accept and will accept the classified material of the general quality and quantity described by these Specifications.
- d. The facility shall provide a listing of all current and valid permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the soils or materials specified in this contract.
- e. The Contractor shall submit a complete list of the disposal facility's permitted allowable contaminant levels and physical characteristic requirements for excavated material, and list any required regulatory approvals for individual waste streams.

11. The plan shall be amended as necessary.

B. Laboratory results for all samples collected and/or analyzed by the Contractor shall be tabulated and compared to applicable MCP standards by the Contractor's Environmental Consultant and subsequently submitted to the Engineer within two days of receipt. The results shall include all Chain-of-Custody forms and all documentation provided by the laboratory.

C. The Contractor shall submit soil disposal documentation

1. Pre-disposal documentation shall be prepared and submitted prior to disposal. Each documentation submittal shall be assigned a unique identification referenced to the stockpile or sample name.
 - a. Completed MSR, BOL, or manifest signed by the Authority and LSP as required.
 - b. Completed and signed profiles as required by the receiving facility
 - c. Analytical data report provided by the analytical laboratory
 - d. Sketch plan showing sampling location
 - e. Summary of soil source location; site history; sampling methods and data comparison to facility criteria and MCP reporting criteria
 - f. LSP narrative and opinion regarding the representativeness of the sampling method, usability of the analytical data, certification regarding the presence or absence of RCRA listed or characteristic waste and suitability for onsite reuse or off-site reuse at the intended facility.
 - g. Receiving facility -required checklist or requirements

2. Post disposal documentation shall be prepared and submitted following disposal and referenced to the pre-disposal documentation by name
 - a. Load sheets completed and signed by the hauler and the receiving facility
 - b. Certified weight slips from the receiving facility
 - c. For BOLs only, the facility and Authority attestations of shipment and receipt.
 3. All soil disposal documentation shall be compiled and re-submitted at the completion of the disposal activities. The submittal shall consist of one or more PDF-Searchable electronic files contained on a CD. The final submittal shall be organized by the uniquely identified MSR, BOL, or manifest.
- D. All elements of the EMMP submittal shall submitted as a final close-out document within 4 weeks after of the completion of all excavation and disposal activities. The final submittal shall consist of one or more PDF-searchable electronic files on a CD. Previous submittals of one or more of the elements described herein or previous eDEP filings shall not modify the requirements of the final submittal. The final submittal shall contain the supporting documentation identified in 1.4 (A) through (C).
- E. The Contractor shall submit their air quality monitoring program for review prior to commencement of site activities.

0.5 REFERENCES

- A. All regulations cited and those of other governing agencies in their most recent version are applicable. This Section refers to many requirements found in these references, but in no way is intended to cite or reiterate all provisions therein or elsewhere. It is the Contractor's responsibility to know, understand, and abide by all such regulations and common practices. Other provisions contained in these references may from time to time during the execution of this Contract be enforced by the Engineer. In the event of a conflict, the most stringent regulations shall govern. The following documents and/or publications are made part of this Section by reference herein:
1. Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.
 2. Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.
 3. Solid Waste Management Facility Regulations, 310 CMR 19.00.
 4. Site Assignment Regulation for Solid Waste Facilities, 310 CMR 16.000.
 5. Interim Remediation Waste Management Policy for Petroleum Contaminated Soils, DEP Bureau of Waste Site Cleanup Policy No. WSC-94-400.
 6. "Hazardous Waste Operations and Emergency Response", Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.

7. "General Regulations for Hazardous Waste Management", EPA, 40 CFR 260.
8. "Regulations for Identifying Hazardous Waste, Hazardous Waste Generators and Hazardous Waste Transporters", EPA, 40 CFR 261, 262 and 263.
9. "Standards for Management of Specific Hazardous Wastes and Facilities", EPA, 40 CFR 266.
10. "Construction of Buildings in Contaminated Areas," DEP, Bureau of Waste Site Cleanup Policy #WSC-00-425, dated January 2000.
11. Massachusetts DEP Policy #COMM-97-001.
12. Local regulations governing dust control, soil handling, and health & safety (see Section 01567 - HEALTH AND SAFETY).
13. Compendium of Quality Assurance and Quality Control Requirements and Performance Standards (CAM) DEP WSC #02320.
14. MassDEP Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and metals in soils.
15. All other applicable Federal, State. Or local requirements.
16. Interim Remediation Waste management Poly for Petroleum Contaminated Soils Attachment II, Jar headspace analytical Screening Procedure. MassDEP Policy no. WSC-94-900.

0.6 DEFINITIONS

- A. Area of Excavation: For the purpose of reusing soil/fill on site the limit of excavation is considered to be the approximate area in which the soil/fill was removed provided that area is consistent in soil strata, color, texture, geotechnical properties and has substantially similar visual and olfactory characteristic as accepted by the Authority's Engineer. Soil/fill returned to the limit of excavation shall be placed approximately in the same location from which it originated.
- B. Background: Any soil or fill material which meets the regulatory definition of "background" as defined in 310 CMR 40.0006 may be reused as common fill/ordinary borrow provided it also meets the physical requirements as specified herein and as specified in Section 02210 - Earth Excavation, Backfill and Grading or the environmental requirements as specified in Part 3.6. Excess soil that meets the definition of background shall be transported under a Material Shipping Record (MSR) or BOL.
- C. Contaminated Material/Soil: Any excavated material found to contain oil or hazardous material (OHM) at concentrations in excess of applicable MCP Method 1 standards (310 CMR 40.0300), Reportable concentrations (310 CMR 40.1600) or regulated background levels (as defined in the MADEP Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons

and Metals in Soil and 310 CMR 40.00006) or other applicable State or Federal Regulations.

- D. Excavated Material: All soil, sediment and/or debris excavated from within the Limit of Excavation.
- E. Generator: The Authority will be the generator, with the exception of materials contaminated by releases from the Contractor's vehicles, equipment or supplies.
- F. Hazardous Material/Waste: A waste/material or combination of waste/material, that because of its quantity, concentration, physical chemical or infectious characteristics may cause or significantly contribute to an increase in a serious irreversible or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. This definition also includes but is not limited to materials regulated under TSCA, M.G.L., chapter 21E, RCRA (310CMR 30.00) and the MCP (310 CMR 40.00) and any applicable Federal regulations Where applicable consideration shall be given to MSDS in determining if a material could be potentially hazardous
- G. Historic Fill: Also referred to as "urban fill." Generally acknowledged as fill material from non-specific sources. Historic fill typically are observed to contain mixtures of ash, coal, glass, brick, wood and/or miscellaneous building debris. OHM attributable to a source or sources or which are attributable to a specific industrial process is excluded from this definition regardless of the physical soil constituents. Historic fill typically contain elevated concentrations of polycyclic aromatic hydrocarbons, lead and/or petroleum hydrocarbons. Historic fill shall not include boulders, ledge, consolidated rock, asphalt, concrete, railroad timbers, rail, cobblestones or any other abandoned building materials which would preclude the disposal of the material as daily cover at a landfill.
- H. Natural soils: Unconsolidated sand gravel silt clay and organic materials which has become a part of the unconsolidated soil matrix.
- I. Special Waste: Any solid waste that is determined not to be hazardous waste and that exist in such quantities or in such chemical or physical state or any combination thereof so that a particular management controls are required to prevent an adverse impact from the collection, transport, transfer storage processing, treatment or disposal of the solid waste. Asbestos and PCB contaminated soils/fill are examples of special waste.
- J. Stockpiled Materials: Any excavated soil/fill and/or debris (which include ABC material or other construction/demolition waste) which are stored prior to re-use, disposal, recycling or treatment.

0.7 PERMIT REQUIREMENTS

- A. The Contractor shall obtain all Federal, State, and local permits required for the transport and disposal of excavated material. The Contractor shall adhere to all permit requirements.
- B. The Contractor shall verify that the disposal facilities, recycling/treatment facilities proposed have all certifications and permits as required by Federal, State, and local regulatory agencies to receive and dispose of the excavated material.
- C. The Contractor shall submit and/or amend all documentation of the permit requirements as stated in this subsection in accordance to the requirements of the EMMP (Section 1.4).

PART 2 - PRODUCTS

0.1 GENERAL

- A. All Contractor personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection for this Work as indicated in Section 01568 - CONSTRUCTION SAFETY.
- B. The containers must be approved by and labeled in accordance with the US Department of Transportation (DOT). The containers shall have a secure cover which will prevent a release of material from truck during transportation.

0.2 STORAGE LABELS

- A. Signage must comply with Section 01580- PROJECT IDENTIFICATION AND SIGNS.
- B. Provide signage to label all stockpiles. Labels shall be of 6-inch by 12-inch weatherproof material, such as plastic, affixed to 1" x 3" wood straps, 3 feet long. The labels shall be clearly marked with indelible ink marker. Markings shall be as agreed upon between Authority and Contractor.

0.3 STOCKPILE SHEETING

- A. Stockpile Sheeting: Provide Nylon-reinforced polyethylene (NRPE) sheeting as follows:
 - 1. The membrane shall be manufactured of new, first quality product designed and manufactured specifically for the intended use.
 - 2. The material shall be 10-mil polyethylene reinforced with a non-woven grid of high strength nylon cord.

3. The material shall be ultra-violet resistant and cold crack resistant to -40 degrees F.
4. The materials shall be manufactured in a minimum 12 foot seamless width. Labels on the roll shall identify the thickness, length width and manufacturer's mark number.

0.4 DUST MONITORING EQUIPMENT

- A. Air monitoring shall include total dust testing using MIE, INC. Miniram PDM-3 Dust Monitors or approved equal.

0.5 EQUIPMENT AND VEHICLE DECONTAMINATION PAD

- A. A decontamination pad shall be constructed of reinforced concrete or bituminous concrete to withstand an H-20 loading. The decontamination pad shall be of minimum length to accommodate one 18-wheel dump truck, and a minimum area to accommodate the largest piece of equipment to be used in the excavation. The pad shall have a six inch containment berm and provisions for collection, storage and disposal of decontamination water. The Contractor shall construct and demolish the decontamination pad as part of the lump sum price.

PART 3 - EXECUTION

0.1 GENERAL

- A. The Contractor shall handle and convey all materials to perform site work described in these Contract documents.
- B. The Contractor shall perform any additional disposal characterization sampling and analytical testing of the excavated material as required by the permitted disposal facility at no additional cost to the Authority.
- C. Based upon all analytical results, transport and dispose of the excavated material as specified herein.
- D. An LSP Opinion shall be required for all material shipped using a Massachusetts Bill of Lading or for off-site re-use of excavated materials.
- E. Utilization of a Hazardous Waste Manifest shall require the use of a licensed hazardous material transporter in conformance with the Massachusetts Hazardous Material Regulations as required by 310 CMR 30.0000. An LSP Opinion is not required when using a Hazardous Waste Manifest for transporting excavated materials.
- F. The Engineer shall have final approval over all disposal options.

- G. Immediately notify the Engineer of visible stains or unnatural odor of any excavated material, or if potentially contaminated and/or hazardous material including asbestos piping is encountered. Work shall not be allowed to continue in this area until approved by the Engineer.

0.2 FIELD SCREENING EXCAVATED MATERIAL

- A. Screen excavated materials for the presence of oil and hazardous materials as excavation proceeds using visual, olfactory and jar headspace analysis.
- B. Perform field screening evaluation in accordance with Department of Environmental Protection Policy No. WSC-94-900, "Interim Remediation Waste Management Policy for Petroleum Contaminated Soils, Attachment II, Jar Headspace Analytical Screening Procedure."
- C. Perform field screening of soils for metals by XRF as appropriate on a site-specific basis or as directed by the Engineer.
- D. Provide services of one or more individuals to field screen excavated materials in accordance with the MassDEP Policy No. WSC- 94-900. The individual(s) shall have been adequately trained in the use of the PID and the XRF. XRF and Jar headspace results shall be recorded on the Contractors daily excavation log.
- E. Field screening equipment shall be provided by the Contractor and maintained and calibrated according to the manufacturer's recommendations.
- F. Maintenance and calibration data shall be recorded on the Contractor's daily excavation log and submitted to the Engineer.
- G. The Contractor shall perform field screening of excavated material at a frequency no less than every 20 cubic yards of material or fraction thereof.
- H. The Contractor shall conduct TCLP testing for soil contamination that is 20 times the Hazardous Waste Threshold concentration (310 CMR 30.125B).
- I. The Contractor shall use the following field screening classification system in order to segregate excavated material:

FIELD SCREENING CLASSIFICATION SYSTEM

MEDIA	VISUAL/ODOR	JAR HEADSPACE ANALYSIS	SCREENING CLASSIFICATION
Material	Light or No Staining	<10 ppm	Presumed Reusable/ within project limit
Material	Staining/Odor or Unnatural Colors	>10 ppm	Presumed not suitable for project re-use

0.3 DISPOSAL CHARACTERIZATION SAMPLING

- A. The Contractor shall be responsible for sampling and characterizing the excavated material to determine appropriate off-site disposal and/or re-use opportunities. The Contractor is responsible for final waste characterization and shall determine if any additional waste characterization is required at no additional cost to the Authority. The Contractor shall provide the Engineer with a minimum of 2 day notice prior to sampling and shall not sample unless the Engineer's approval is received.
- B. Stockpiled soils: Soil stockpiles shall be limited in size to a maximum of 500 cubic yard. A minimum of one grab sample (for VOC analysis) and a composite sample (generated by collection of at least eight (8) random grab samples from across the stockpile) shall be collected from each stockpile. The sample will be collected at a minimum depth of one foot from the stockpile surface.
- C. For in-situ soils: Soil samples shall be collected at a frequency of a minimum of one five-point composite sample (except for VOC's) per 500 cubic yard of material.
- D. Test pit sampling: Test pit samples shall be collected from the excavation pit or if infeasible, from the excavator bucket. Samples shall be composited from the excavation bottom and the sidewalls so as to form a sample representative of the test pit soils. If samples are collected from the excavator bucket or from a stockpile generated from the test pit excavation, the collection method described in Section 3.3(B) shall apply.
- E. Should the Disposal Facility require additional samples the Contractor shall collect a sufficient number of samples that will satisfy the requirements of the disposal facility. No separate payment will be made for sampling conducted by the Contractor, the Contractor's LSP or any agent/personnel acting on behalf of the Contractor or the Contractor's LSP.
- F. Samples shall be collected in such a manner as not to result in cross-contamination. All sampling equipment shall be decontaminated between

uses. Disposable sampling equipment shall not be used for collection of more than one sample.

- G. The collected samples shall be submitted, at a minimum, for the following chemical analyses: total petroleum hydrocarbons (TPH) using modified EPA method 8100, acid/base/neutrals (A/B/Ns) using EPA method 8270, volatile organic compounds (VOCs) using EPA method 8260, polychlorinated biphenyls using EPA Method 8082, RCRA 8 metals (arsenic, barium, cadmium, mercury, selenium and silver) using Method 6010/7471, reactive cyanide and sulfide using EPA method sw-846, Ignitability using modified EPA method 1010, Corrosivity using EPA Method 9045, and Conductivity using EPA method 120.1. Any sample found to contain contaminant concentration equal to or greater than "20 times" their hazardous waste toxicity threshold (i.e. the 20-times rule) shall be analyzed for toxicity characteristic leachate procedure (TCLP).
- H. All analyses shall be performed by a laboratory certified for such analyses by the Commonwealth of Massachusetts.
- I. The Engineer may at any time request that the Contractor obtain/collect samples for analysis. The Engineer reserves the right to request the collection of up to ten (10) samples at no additional cost. The work shall not resume in that area until directed by the Engineer. Unless specified by the Engineer, the cost for any soil samples collected above the 10 additional samples shall be included under 4.1(B).

0.4 TEMPORARY STOCKPILING OF EXCAVATED MATERIALS

- A. Unless otherwise directed by the Engineer, excavated material shall be reused on-site or disposed of off-site within 45 days of excavation.
- B. When it is necessary to temporarily stockpile excavated material it shall be stockpiled in a secure manner to prevent exposure to humans and the environment.
- C. The stockpiling or consolidating of excavated material near sensitive human health receptors such as public and private water supply wells or sensitive environmental receptors such as wetlands, surface water bodies, or marine environments shall be strictly prohibited.
- D. Excavated material to be stockpiled shall be placed entirely on a polyethylene liner, shall be covered at the end of each day's work and at all times when earthwork is not taking place on site, with the same material or so as to minimize the infiltration of precipitation, volatilization of contaminants and erosion of the stockpile. Any cover material used shall be properly secured and replaced if damaged.
- E. Excavated material that has not been characterized and which exhibit odor staining and/or constituents which indicate the potential for OHM or which have through laboratory chemical analysis been determined to be impacted

by OHM above RCS-1 concentrations shall be completely covered with a minimum 10-mil thick layer of plastic tarp at the end of each working day and secured with ropes, ties, anchors or equivalent materials. The covered system shall be capable of resisting actual wind gust at the site, with a minimum wind capacity of 40 miles per hour.

- F. Excavated material not previously classified in accordance with the field screening classification, final characterization, or as otherwise directed by the Engineer shall be stockpiled separately based on classification. Transfer suspected waste material from the excavation to a stockpile area in a manner to prevent the spread of contaminated material with other materials.
- G. Stockpiles are to be segregated based on a review of pre-characterization data, visual and olfactory conditions and field screening results obtained during excavation. Stockpiles shall be no greater than 500 cubic yards. Similar material may be stockpiled together; however effort will be made to keep each stockpile separate. Each stockpile must be clearly marked from adjacent stockpiles.
- H. Stockpiles shall include berms around the edges to minimize infiltration of storm water or exfiltration of leachate.
- I. Any failure of materials or procedures used in employing the base layer or cover layer shall be immediately repaired, replaced or re-secured so as to minimize precipitation infiltration, volatilization and erosion/runoff of the excavated material.
- J. Movement and/or aeration of excavated material shall be limited to those activities that are necessary to manage such stockpiles. Land farming of excavated soils that are subject to MCP regulations is prohibited.
- K. Disposal of material that is contaminated as a result of careless handling, cross contamination or use of unauthorized procedures shall be at the Contractors expense. Delays of Work resulting from temporary storage of excavated material, regardless of the classification, shall be at no additional cost to the Authority.
- L. The stockpiles shall be clearly labeled and securely barricaded from contact with workers and the general public.

0.5 DEBRIS MANAGEMENT

- A. The Contractor shall be responsible for decontaminating debris. The decontamination means and methods shall be amended to the EMMP. Payment shall be in accordance with Part 4.

0.6 ON-SITE AND OFF-SITE SOIL REUSE AND DISPOSAL

- A. Excavated material found to be suitable for on-site or off-site reuse or disposal shall conform to the following:
1. Soils shall comply with the geotechnical requirements and shall be suitable for the intended use as described in Section 23000 - Earthworks.
 2. Soils not exhibiting visual or olfactory evidence of OHM or elevated metal concentration as identified by XRF screening may be reused within the area of excavation without first performing laboratory analysis. Soil/fill material that is not re-used within the area of excavation must be characterized prior to re-use.
 3. Any soil which exhibits a petroleum odor or has a chemical odor or visual indications of OHM or elevated metals as identified by XRF shall be handled as potentially contaminated soils. Soil exhibiting visual or olfactory evidence of OHM shall not be reused on-site without prior confirmation that the OHM concentration shall not pose a significant risk under current or future use scenarios.
 4. Excavated material which has been characterized may be re-used within the limits of work provided the proposed re-use area has been characterized and determined to meet MassDEP anti-degradation requirements. Soil reuse shall also comply with MassDEP Policy #WSC-00-425, "Construction of Buildings in Contaminated Areas"
 5. Excavated material that has been sampled and found to contain OHM concentrations less than MCP RCS-1 limits or regulated background (as defined in the Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soils) as applicable and subject to geotechnical requirements and shall be suitable for use as described in Section 2300 - Earthworks, shall be considered suitable for on-site reuse
 6. Background soils may be re-used without restriction provided that the soil is re-used in an area where the excavated soil concentrations is equal to or less than the site specific background determined at the reuse location. The Contractor is responsible for determining the background levels in the area of excavation; the Contractor shall identify one or more disposal facilities/locations with background levels appropriate to receive the excavated material. It is the Contractors responsibility to determine these background levels in advance so as to comply with 310 CMR 40.0032(3)(b) and so as not to delay or adversely affect construction operations.
 7. If re-used off site, the Contractor shall be responsible for documenting that excavated material that is designated for off-site reuse shall contain OHM concentrations equal to or less than OHM concentrations at the designated reuse location (in accordance with the MCP's "anti-degradation" policy) or in accordance with the facility permitted acceptance limits. The Authority shall have final approval over all proposed reuse locations.

8. Excavated materials that has been sampled and determined to contain OHM in concentrations at or exceeding RCS-1 Reportable Concentrations or regulated background levels (as defined in the Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soils) whichever applicable , maybe suitable for on-site re-use if a risk assessment determines that these soil do not pose a significant risk to human health and the environment at the proposed location(s) with associated current and anticipated future uses(s) and do not violate MassDEP Anti-Degradation Policy.

0.7 MCP NOTIFICATION REQUIREMENTS

- A. Notification to the MassDEP shall be the sole responsibility of the Authority.
- B. The Contractor shall be familiar with the MCP definitions of “two hour”, “72 hour” and “120 day” reportable conditions
- C. The Contractor shall immediately notify the Engineer of any 2-hour and 72-hour and 120-day reporting condition. .
- D. MCP notification for petroleum shall be based upon VPH/EPH MassDEP Method 1.0 analysis. Notification shall not be based upon Total Petroleum Hydrocarbon concentrations.
- E. Depending upon the nature of the reportable conditions, the MCP may require the cessation of work, implementing a Limited Removal Action (prior to notification), developing/implementing an “Immediate Response Action Plan” or a “Release Abatement Measure Plan” prior to continuing work or other actions which could delay certain aspects the site work.
- F. The Contractor shall prepare electronic eDEP MCP filings required during the during construction, including but not limited to Release Notification Forms (RNF), Release Abatement Measures (RAM), Utility-related Abatement Measures (URAM), and subsequent associated status reports or any other required MCP filings. All MCP related documents shall be reviewed and approved by the MBTA prior to eDEP transmittal and shall be amended to the electronic searchable PDF version of the EMMP. Payment shall be made under the Allowance item pursuant to Section 4.1A. This Allowance does not include soil management documentation which is included in the LUMP SUM pursuant to Section 4.1B.

3.8 ENVIRONMENTAL FIELD MONITORING/DUST CONTROL

- A. During excavation and construction the Contractor shall monitor the air quality where construction activities involve soil handling such as excavation, relocation, staging, loading or grading of soil/waste materials.

All personnel shall be made aware of potential hazards and be informed of air monitoring information.

- B. The air monitoring program is to be designed to protect public health and the environment from the potential generation of dust and contaminant release during the Work.
- C. The Contractor shall hire an Environmental professional to keep accurate documentation of all air monitoring which will be made available to the Engineer upon request.
- D. The Contractor's Site Health and Safety Officer and Superintendent shall be responsible for ensuring that monitoring is conducted in an appropriate manner and that work practices, engineering controls and/or personal protective equipment are proper for the conditions.
- E. At a minimum, the air monitoring shall include daily monitoring and documentation of one upwind and two downwind conditions during periods of activity on the site and when there is a potential for dust being generated on the site.
- F. The air monitoring information including air monitoring in the vicinity of the site activities shall also be utilized for establishing levels of personal protection measures in the Contractor's Site Specific Health and Safety Plan.
- G. Air monitoring shall involve appropriate techniques capable of providing real-time indications of air contaminants to protect on-site personnel and the local population.
- H. If there are indications of contamination, the frequency of air monitoring shall be determined by the Contractor's Industrial Hygienist or competent health professional.
- I. Dust shall be controlled during excavation of soil/fill material to limit potential spread of contaminants and potential exposure of contaminants to workers and the public.
- J. Nuisance dust levels shall be reduced by pre-wetting the surface soils and by establishing and maintaining clean access roads. The Contractor's Dust, Vapor and Odor Control Plan shall describe the procedures and materials to minimize dust. At a minimum the Contractor shall provide clean water, free from salt, oil and other deleterious materials.
- K. Prior to excavation areas of exposed earth shall be lightly sprayed with water before excavation if there is potential for nuisance dust generation. Additional water spray may be utilized only when any indication of excessive dust is observed. To the extent feasible, the Contractor shall minimize the use of water within the limits of excavation.

- L. When feasible, access roads shall be sprayed with water on a regular basis to minimize the generation of dust.
- M. All containers and stockpiles shall be covered at all times except as necessary to place or remove materials from the containers or stockpiles, The Contractor shall monitor the covers daily to ensure the covers are in place and effectively eliminating the generation of dust.

0.9 VAPOR and ODOR CONTROL

- N. The Contractor shall provide the materials and labor to control objectionable vapors and odor in accordance with the Contractor's Dust, Vapor and Odor Control Plan. The Contractor shall limit the exposure area and shall cover the exposure area with synthetic reusable covers, lime, foam suppressants or other methods to reduce off-site odors to acceptable levels. The Contractor shall not use soil suitable for on-site re-use as a cover to control vapor and odors.

0.8 DISPOSAL FACILITY CLASSIFICATION /CATEGORIES

- A. The Contractor shall transport the material for off-site reuse, recycling, or disposal at a permitted facility based on the following categories:
 - 1. Less than RCS-1 Facility: Accepts excavated material which contains oil or hazardous materials (OHM) at concentrations greater than background levels but less than release notification thresholds established by 310 CMR 40.0300 and 40.1600. Less than RCS-1 may be reused in the area of excavation or as fill provided it is reused in an area of equal or greater contamination and meets the physical requirements as specified herein. Soils so classified shall be disposed of or reused at a property licensed to accept less than RCS-1 soils or at an In-State Unlined Landfill, whichever may be managed at a lesser cost to the Authority
 - 2. In-State Unlined Landfill Facility: Accepts excavated material that meets MassDEP criteria for reuse at in-state unlined landfills, to be used as daily cover, intermediate cover, and pre-cap contouring material. The material must not exceed the contaminant levels listed in DEP Policy #COMM-97-001. This category also includes excavated material and solid waste that meets Massachusetts DEP Solid Waste criteria and regulations and the facility's operating permit for reuse or disposal in the Massachusetts landfill per COMM 97-001. Sediments may not be reused at an in-state unlined landfill.
 - 3. In-State Lined Landfill Facility: Accepts excavated material that meets MassDEP criteria for reuse at in-state lined landfills, to be used as daily cover, intermediate cover, and pre-cap contouring material. The material must not exceed the contaminant levels listed in DEP Policy #COMM-97-001. This category also includes excavated material and solid waste that meets Massachusetts DEP Solid Waste

criteria and regulations and the facility's operating permit for reuse or disposal in the Massachusetts landfill.

4. In-State Asphalt Batch Recycling Facility: Accepts excavated materials that meet the criteria set forth in MassDEP policy WSC-94-400 and the receiving facility's operating permit(s) for recycling at a licensed in-state facility.
 5. Regional Thermal Treatment Facility: Accepts soil and fill that contains contaminants that exceed in-state lined and unlined landfill reuse criteria as well as in-state recycling acceptance criteria but meets the criteria for regional thermal treatment facilities or out-of-state recycling facilities and are not classified as a RCRA Hazardous Waste.
 6. NON-RCRA Out-of-State Lined Landfill: Accepts excavated material that contains concentrations of OHM that require removal to a regional disposal facility (ies), are not classified as a RCRA Hazardous Waste and meets the destination state's solid and hazardous waste regulations and the receiving facility's operating permit(s). This includes material designated as a "special waste."
 7. Treatment of soil Prior to Disposal/Re-use: Materials determined through testing to be characteristically hazardous waste due to TCLP testing shall be treated on-site to render the material characteristically non-hazardous.
 8. Other Legal Disposal and/or Recycling Facilities not mentioned above: Accepts excavated materials in accordance with the valid state or federal operating permit(s).
- B. With the exception of <RCS-1 and RCRA Landfill Material soil shall be transported using a Bill of Lading (BOL). RCRA Landfill Material shall be transported under a Uniform Hazardous Waste Manifest (Manifest). <RCS-1 soils shall be transported using a Material Shipping Record (MSR). Closed-out BOLs, Manifest and copies of MSRs will be amended to the electronic searchable PDF version of the EMMP.
- C. Material shipped to any recycling/disposal facility must meet the selected facility's chemical and physical acceptance criteria. Selected facilities must be established, fully operational, appropriately insured, and be operating in compliance with all applicable local, state, and federal regulations.

0.9 WASTE PROFILES AND SHIPPING DOCUMENTS

- A. The Contractor shall provide certified tare and gross weight slips for each load received at the accepted facility and these shall be attached to each returned shipping document.

- B. The Contractor shall prepare and submit to the Engineer for review all waste profile applications and questionnaires, and coordinate with disposal facilities and all Federal and State Environmental Agencies.
- C. The Contractor shall prepare all Hazardous Waste Manifests, Bills of Lading, and material shipping records with all applicable analytical backup, notification, and control forms. Final copies of Bills of Lading shall be signed by the Authority as generator and by the Contractor's LSP following submissions and approvals of draft Bills of Lading.
- D. The Contractor shall furnish all generator copies of the Hazardous Waste Manifest to the Authority for submittal to the appropriate regulatory agencies and to retain for the Authority's records.

0.10 TRANSPORT OF EXCAVATED MATERIAL

- A. The Contractor shall not be permitted to transport materials off-site until all storage, disposal, or recycling facility documentation has been received, reviewed, and approved by the Engineer.
- B. The Contractor shall transport materials from the site to the storage, disposal, reuse or recycling facility in accordance with all United State Department of Transportation (DOT), USEPA, MassDEP, and applicable state and local regulations.
- C. The Hauler(s) shall be licensed in all states affected by transport.
- D. The Contractor shall be responsible for ensuring that free liquid is properly transported. "Wet soils" shall not be loaded for transport. The Contractor shall dewater "wet soils", and properly dispose of free liquid in accordance with local, state, and federal regulations. The Contractor shall dispose of any free liquids that may results during transportation at no additional cost to the Authority.
- E. All excavated material transported upon public roadways shall be covered to minimize fugitive dust, and where necessary truck tire and undercarriage decontamination shall be employed to minimize tracking of soils onto public roadways.

0.11 DISPOSAL

- A. Dispose of excavated materials at an approved facility in accordance with all federal, state and local regulations.
- B. The Contractor shall perform analyses on the material as necessary to fulfill any disposal testing requirements of the approved Facility.
 - 1. The Contractor shall bear all costs incurred in sampling and analyses for those tests required by the facility.

2. The Contractor shall submit a copy of all sampling analyses to the Engineer within two days of receipt of the laboratory report.
- C. The Contractor shall provide to the Engineer copies of all weight slips; both tare and gross, for every load weighed and disposed of at the approved facility. The slips shall be tracked by the original shipping document number that was assigned by the Engineer at the site. The Engineer shall make progress payments after receipt of these weight slips.

PART 4 - MEASUREMENT AND PAYMENT

0.1 GENERAL

- A. The Contract Allowance Item XXXX.XXX DISPOSE OF ALLOWANCE QUALIFYING SOILS as defined by Parts 1.6 C. Contaminated Material/Soil, F. Hazardous Material/Waste and I. Special Waste shall cover only the costs associated with transporting, disposal and LSP services as follows:
 1. Allowance item shall cover the costs for the transport and disposal of all contaminated soils at an in-state Asphalt Batch Recycling Facility, Lined Landfill and any treatment of, contaminated or hazardous soils as described in Part 1.6 Items C, F and I prior to disposal.
 2. For samples collected as directed by the Engineer pursuant to Section 3.3(I), the laboratory analysis shall be included as an allowance payment item.
 3. For in-state or out-of-state transport and disposal of contaminated or hazardous soils or other materials that meet any one of the definitions or thresholds as described in Part 1.6 Items D, F, and J the costs covered under the allowance will consist of costs incurred by the LSP services specific to the contaminated soils/materials encountered.
 4. For out-of-state, instate lined landfill and asphalt batch plants transport and disposal of contaminated or hazardous soils or other materials that meet any one of the definitions or thresholds as described in Part 1.6 Items C, F, and I.
 5. Costs covered under the allowance shall consist of the transportation and disposal cost for disposal minus the initial baseline cost for in-state disposal at an unlined or <RCS-1 facility. The initial baseline cost per ton shall be calculated using the approved lump sum breakdown schedule of values for the total of transportation and disposal for in-state disposal at a unlined or <RCS-1 facility divided by the Contractor's estimated total tons of soil disposed. Upon completion of the work the final baseline cost per ton will be determined after all disposal of soil is completed and the Contractor has submitted documentation of costs of transportation and disposal for in-state disposal at a unlined or <RCS-1 facility and final quantities of total tons of soil disposed.

6. The Contractor shall document both the initial and final baseline cost per ton and the costs covered under the allowance by providing bid sheets, receipted invoices and signed receipts from subcontractors and disposal facilities associated with soil transport and disposal. Measurement for disposal of contaminated soils/materials, shall be by the ton or as accepted by the facility.
7. Allowance item shall cover the costs associated with all activities required to implement Section 3.7 and subsequent compliance of applicable portions of 310 CMR 40.000 et. seq.
8. Payment for Item XXXX.XXX DISPOSE OF ALLOWANCE QUALIFYING SOILS will be made in accordance with the requirements of Section 01020 Allowances.
9. If at the time of the issuance of this specification there are no in-state landfills accepting soil as daily cover, the Contractor shall assume that soil meeting acceptance criteria for in-state lined landfill shall be disposed of at the appropriate out-of-state landfill. If disposal capacity becomes available in Massachusetts, the Contractor will be required to dispose of the material in-state and the MBTA will be entitled to a credit based on the differential in actual cost of transportation and disposal.

B. Separate Measurement or payment shall not be made for all other Work of this section but all costs in connection therewith shall be included in the Contract Lump Sum price for Item XXXX.XXX SEE NOTE TO DESIGNER. A general description of the Work covered under the Lump Sum includes but is not limited to:

1. The re-use and disposal of excavated soils to include all labor, materials, tools, equipment, and incidentals required for soil and waste management.
2. The on-site reuse of excavated material, including all sampling, analyses, loading transporting, and unloading activities related hereto.
3. Environmental Professional services; soil/fill sampling; analytical services; development and implementation of all submittals and plans specified; submittal of all required certifications; coordination with all parties affected and maintaining proper documentation; disposal of wastes, such as construction-related waste and by-products.
4. Contractor-generated waste material, such as personal protective equipment, excess materials, debris, wash water, and any other waste materials not specifically addressed in other payment items.
5. Soil characterization sampling and analysis costs for the soil/fill referenced herein.
6. Constructing and maintaining a secure soil/fill staging area for soil/fill stockpiling pending analytical testing, reuse, or disposal.

7. Any handling including loading, off-loading and transportation cost to the off-site or on-site soil/fill stockpiling area/staging area or treatment area along with all permits and administration fees.
8. Placement of polyethylene liner under piles; additional placement of bituminous or cement concrete as may be needed at the staging area.
9. Construction of segregated soil/fill bays; signage and lighting at the staging area; installation of sedimentation and erosion control at the staging area.
10. Construction of a truck wash down area; construction and demolition of a decontamination area with wheel wash; maintenance including placement of daily polyethylene covers over existing stockpiles.
11. Performing dust control; street sweeping; vehicle wheel-washing in the staging areas as needed to control airborne dust and sediment from spreading beyond the staging area or presenting a health risk to the workers or public.
12. Day to day security measures; maintenance of the soil/fill stockpiles to avoid migration; and maintenance of the sedimentation and erosion control measures.
13. Removal, hauling, and disposal of all items of which the staging area was constructed as well as the restoration of the staging area to pre-construction conditions.
14. Handling including loading and off-loading, transport and disposal of all soils at an in-state permitted facility (including but not limited to In-state Unlined Landfill, or Instate less than or equal to RCS1 facility). The Contractor may dispose of soil by reuse off-site as described in Part 3.7; however, no additional payment shall be made if a suitable reuse location is not available.
15. Handling including loading and off-loading of soils to an In-state Asphalt Batch Recycling Facility, Lined landfill or Out-of State disposal facility. The Contractor shall amend the EMMP and provide to the Engineer copies of all weight slips; both tare and gross, for every load weighed and disposed of at the approved facility. The slips shall be tracked by the original shipping document number that was assigned by the Engineer at the site. The Engineer shall make progress payments after receipt of these weight slips. Payment will be made upon Authority's confirmation of the accepting facility's weight receipts and the completed and signed BOLS (eDEP electronic attestation) and/or MSRs confirming receipt by the accepting facilities.
16. If at the time of the issuance of this specification there are no in-state landfills accepting soil as daily cover, the Contractor shall assume that soils meeting acceptance criteria for in-state unlined landfill shall be disposed of at an out-of-state landfill. If disposal capacity becomes available in Massachusetts, the Contractor will be required to dispose of the material in-state and the Authority will be entitled to a credit based on the differential in actual cost of transportation and disposal.

0.2 PAYMENT ITEMS

A.	<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
	0221.331	DISPOSE OF ALLOWANCE QUALIFYING SOILS	AN
	XXXX.XXX	See Note to Designer	LS

END OF SECTION

NOTES TO THE DESIGNER

- A. Priority shall be given for re-use of excavated soil within the footprint of the construction project.
- C. Any request to modify or waive the specification requirements listed below must be approved in writing by the MBTA's Director of Design:
- D. The description for the Lump Sum Payment Item should be determined by the Design Consultant and Project Office. Examples of Lump Sum descriptions include but may not limited to Item No. XXXX.XXX BRIDGE NO. 1; Item XXXX.XXX BRIDGE NO. 2; Item No. XXXX.XXX DEMOLITION OF BUILDING; Item XXXX.XXX STATION MODERNIZATION etc.